CLAIM

What is claimed is:

1. A color filter for use in a liquid crystal display device, comprising:

a substrate having two surfaces;

a polarizer matrix having a first polarization direction formed on one surface of said substrate defining a plurality of openings; and

a color filter layer formed on said substrate in the openings of said polarizer matrix.

2. The color filter as recited in claim 1, wherein said polarizer matrix is made of a thin crystal film material.

3. The color filter as recited in claim 1, wherein the first polarization direction of the polarizer matrix is determined by applying a stress force, or gravitational or electromagnetic fields on said polarizer matrix.

4. The color filter as recited in claim 1, further comprising a protective layer covering said polarizer matrix and said color filter layer.

5. The color filter as recited in claim 4, further comprising a conductive layer covering said protective layer.

6. The color filter as recited in claim 5, wherein said conductive layer is made of a transparent conductive material such as indium-tin-oxide.

7. The color filter as recited in claim 1, further comprising a polarizer film having a second polarization direction formed on another surface of said substrate.

8. The color filter as recited in claim 7, wherein the second polarization direction of said polarizer film is perpendicular to the first polarization direction of said polarizer matrix.

9. A method for manufacturing a color filter, which comprises the steps of:

(a) providing a substrate having a first surface and a second surface;

(b) forming a polarizer matrix on the first surface of the substrate and defining a plurality of openings; and

(c) curing the substrate, on which a polarizer matrix has been formed, in an oven.

10. The method as recited in claim 9, wherein step (b) further comprising the step of:

(d) applying a stress force, or gravitational or electromagnetic fields on the polarizer matrix so as to obtain a first polarization direction.

11. The method as recited in claim 9, wherein after step (c), further comprising the steps of:

(e) forming a color filter layer on the substrate in the openings of the polarizer matrix;

(f) forming a protective layer covering the color filter layer and the polarizer matrix;

(g) forming a transparent conductive layer on the protective layer; and

(h) forming a polarizer film on the second surface of the substrate, the polarizer film having a second polarization direction.

12. The method as recited in claim 11, wherein the second polarization direction of the polarizer film is perpendicular to the first polarization direction of the polarizer matrix.

13. A color filter for use in a liquid crystal display device, comprising:

a substrate having opposite first and second surfaces;

polarizer areas having a first polarization direction and formed on the first surface of said substrate and defining a plurality of openings therebetween;

a color filter layer formed on the first surface of said substrate at least in the openings of said polarizer areas.

14. The color filter as recited in claim 13, wherein a polarizer film having a second polarization direction, is formed on the second surface of the substrate.